Meyer (W.)

Operative Treatment of Flat-Foot by Supramalleolar Osteotomy.

BY

WILLY MEYER, M. D.

REPRINTED FROM

The New York Medical Journal

for May 24, 1890.

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OPERATIVE TREATMENT OF FLAT-FOOT BY SUPRAMALLEOLAR OSTEOTOMY.*

By WILLY MEYER, M. D.

The great progress of orthopædic surgery in regard to the treatment of the static deformities of the lower extremities dates from the time that bloody operations, rendered safe by antisepsis, have been added to our orthopædic resources. For each of the well-known deformities—such as genu valgum and varum, talipes varo-equinus and talipes plano-valgus—a great number of operations have been proposed and are still performed. Especially for the cure of the two last-mentioned troubles a great variety of operations exist. This proves that no operation has as yet been found which can be safely relied upon in its ultimate results.

There are even authorities who reject all operative interference in these deformities of the foot, and profess to be able to cure even severe cases of this class by repeated forcible reposition under narcosis and retention in a portative plaster-of-Paris or silicate-of-potassium splint.

Still others object even to this treatment, as far as the flat-foot is concerned, on the ground "that such retention would interfere with the movements of the foot and prevent

* Read before the New York Surgical Society, March 12, 1890.

the exercises for strengthening the muscles, on which we must place our main reliance." * They hope to cure flat-foot by means of shoes, braces, gymnastic exercises of great variety, massage, etc. Old cases, with permanent changes in the bones, can only be improved in this way.

Of course no objection could be made to these non-operative methods if it were true that a real cure could often be effected by them and without recurrence of the deformity after cessation of the treatment. Such methods should indeed be first tried in all cases of flat-foot where the deformity is still easily reducible by manipulations. But in more advanced cases, where the deformity has become rigid, where the astragalus has slipped forward, downward, and inward from the os calcis and the scaphoid also has been displaced downward, where the shape of the bones has been permanently changed, this treatment will take a long time before a cure is effected. And even then the ultimate result will be doubtful.

Now, there are not in many cities hospitals and dispensaries where orthopædic machines and braces are accurately constructed on scientific principles and supplied for a moderate price. A good, reliable shoe-maker is not so easily found. Not every patient is willing to undergo a long-continued treatment or is able to pay for it, though the charges may be trifling. Why, may be asked, has osteotomy been almost everywhere adopted in the treatment of genu valgum and genu varum, which deformities can, to a great extent at least, also be cured by orthopædic apparatus in the course of months? Why, then, should flat-foot alone be excluded from the benefits of operative treatment? If there is a safe operation —and all these operations *are* safe under careful antiseptic

* Royal Whitman, Observations on Seventy-five Cases of Flat-foot. Transactions of the American Orthopædic Association, vol. i, p. 129, 1889.

precautions—which promises to accomplish a cure in weeks what others can only do in months, it should be sufficiently tried. And if its results are found by many to be good and permanent, it should be added to the multiple means which are now at the disposal of orthopædic surgery. Of course, no surgeon would think of operating on the flat-foot of a pregnant woman or on that of a fat man, because in the one case the confinement, in the other the reduction of weight, would remove the complaint without need of treatment; none would ever, at least not at present, attack the pes valgus of a rickety child. But in the treatment of the poor working class, where, in bakers' boys, grocers' boys, and butchers' boys, in messengers and waiters, flat-foot is such a very common disease and in so many instances help is applied for only when the deformity offers firm resistance to its reduction, a shorter treatment ought to be welcome.

Before describing the operation mentioned in the title, a short review of the various operative procedures which until date have been devised and tried in the treatment of flat-foot, and the results achieved with them, may be of some interest.

1. So far as a careful perusal of the literature shows, C. H. Golding-Bird, of London, was the first to operate for flat-foot, in 1878.* He operated on four patients—on three in 1878 and on one in 1879—between twelve and seventeen years of age. In two cases the scaphoid bone alone was removed, and in two that bone together with the head of the astragalus. In one of these Golding-Bird sawed subcutaneously across the whole tarsus, besides removing the scaphoid. The results were uniformly good; all the patients were cured of pain, but in only one case was the arch really restored. Richard Davy, of London, performed the same operation on two patients, fourteen and seventeen years old

* Guy's Hosp. Rep., 1882, p. 457; Lancet, 1889, i, p. 677.

respectively, in 1887 and 1888.* The result was satisfactory in each case, so far as walking power was concerned. "The patients, having been prevented from gaining their living, could again pursue their duties as milkman and newsboy."

2. In 1884 A. Ogston, of Aberdeen, published his operation for the cure of flat-foot.† He believes that the deformity is caused by relaxation of all the articulations of the foot, especially that between the scaphoid and the head of the astragalus, and subsequent alteration of shape in the bones of Chopart's joints. He considers these two points as being "the key to the disease and its successful operative treatment." He therefore attacks Chopart's joint with the intention of restoring it in its normal position and thereby rectifying the faulty position of the foot. The usual careful preparations having been carried out, he cut down on the astragaloscaphoid articulation, chiseled off the cartilaginous surfaces, and, after restoring the two bones to position, fixed them together with fine ivory pegs, which were left in the wound. Careful catgut suture, antiseptic dressing, and a few turns of plaster-of-Paris bandage outside the latter, finished the operation. This operation was performed seventeen times in ten patients (until January 14, 1884), usually on both feet in one sitting. In one case Chopart's joint was pegged as well as that between the scaphoid and internal cuneiform, because its movement seemed unusually free. The wounds healed by primary union. The patients were permitted to walk a little at the end of two months, but, as a rule, they should not do so until three months have elapsed. All patients were benefited by the operation and satisfied

* On Excision of the Scaphoid Bone for the Relief of Confirmed Flat-foot. Lancet, 1889, i, p. 675.

† Alexander Ogston, On Flat-foot and its Cure by Operation. The Lancet, January 26, 1884.

with the result, even at considerable periods after the operation. They resumed their former occupation. Objective examination proved the plantar arch to be restored to perfection in a number of cases; in the others it always was much improved.

At the meeting of the British Medical Association, 1888, Ogston presented a roll of forty-seven cases, similarly operated, with the same encouraging results.

3. W. Stokes,* of Dublin, removed a wedge-shaped piece of bone from the enlarged head and neck of the astragalus in a boy fourteen years old. He called his operation astragaloid osteotomy. By adducting and supinating the foot, the restoration of the arch was perfect; six months later the author learned by report that the boy "was able to walk, run, and play about as well as any other healthy boy of his age."

4. Two years ago Weinlechner,† of Vienna, excised the astragalus in one side for the radical cure of flat-foot. At first the leg was shortened for half an inch; this was outgrown later. After some time the tibio-tarsal articulation was rather stiff; mobility in Chopart's joint more satisfactory. The patient could more easily walk and stand on the foot operated upon than on the other.

A great variety of operations has been published last year.

5. A. W. Hare ‡ modified Ogston's operation and tried it in one case. To avoid the introduction of an ivory support he cut the bony surfaces of the astragalo-scaphoid joint in a zigzag line, and then replaced the two bones, allowing the projecting upper two thirds of the head of the astragalus to rest upon a horizontal artificial plane of the scaphoid.

* Annals of Surgery, October, 1885.

† Wien. med. Blätter, 1888, x.

‡ Lancet, Nov. 9, 1889, p. 953.

"The bones were held firmly in their new relationship to one another, and it was at once seen that the arch of the foot was restored." Seven weeks after the operation "the patient could walk easily and without pain; he was able to return to his usual employment, and has continued to improve since."

6. A. M. Phelps,* of New York, recently performed an operation for flat-foot "which consisted in making an incision across the sole of the foot, and through this incision the muscles and fascia were hooked up, cut apart, shortened, and again stitched together. The skin was also shortened. The object of the operation was to shorten the girders which held up the arch." A preliminary treatment of about two to three weeks is necessary in order to mobilize the displaced rigid arch.

7. At the last meeting of the German Surgical Society at Berlin, April, 1889, F. Trendelenburg, of Bonn,† communicated his experience with supramalleolar osteotomy in the radical treatment of flat-foot. Having seen good results with this operation in correcting traumatic talipes valgus, a position which was the result of a neglected and unreduced Pott's fracture, it occurred to him to try the same method for the idiopathic flat-foot. His calculation was this: The cause of the great functional disorder and the excruciating pain in traumatic flat-foot is the displacement of the line of gravity by the alteration of the longitudinal axis of the leg. The latter does not cross the sole of the foot in its median line, as is the case in the normal foot, but in a point nearer to its inner border, and thus the weight of the body is also brought to bear inside of its normal position. On account of the eversion of the foot in some cases

* Transactions of the American Orthopædic Association, vol. i, 1889, p. 137.

† Archiv f. klin. Chirurgie, Bd. xxxix, 4. Heft, p. 751.

the line of gravity meets the inner border of the sole itself; sometimes, if the deviation is very marked, not even this, but a point of the ground entirely outside of and inwardly from the sole. This condition may be best studied in examining such an extremity from its posterior side. The foot being in this abnormal position, the tarsal ligaments will be stretched with each step; the foot becomes everted (talipes valgus). Walking and standing tend to increase the deformity, and consequently the patient's troubles.

In the idiopathic flat-foot the condition is very similar. The most striking symptom is, of course, the flattened arch. But in all advanced cases, where the deformity is irreducible and the foot in the everted or valgus position, the changed relation between axis of leg and plantar arch is the same as in a case of badly treated Pott's fracture. The axis nearly passes the internal border of the sole, the internal malleolus is markedly prominent, the external nearly invisible.

Now, if in traumatic flat-foot tibia and fibula are cut across with the chisel right above the malleoli, the deformity can easily be corrected and the foot so placed "as to transmit the weight of the body," if the patient walks again, "through the tarsus in an oblique direction—that is, through the cuboid instead of the scaphoid bone." This is, as Phelps stated (*loc. cit.*), the object of treatment of flat-foot.

With the experience of this operation it was, of course, very tempting for Trendelenburg to try supramalleolar osteotomy also for the radical cure of idiopathic flat-foot. He performed the operation seven times in five patients between sixteen and forty years of age (until April, 1889), and was astonished to see the remarkable success in all of them. The arch was restored and the displacement of leg and foot at once removed; the difficulty and pain in walking and

standing had fully or nearly disappeared. A sixteen-year-old boy who had been successfully operated upon on both sides in one sitting four months previous was presented to the society.

At the same meeting Eugen Hahn * stated that he had adopted a very similar plan of operation for flat-foot independently of Trendelenburg. He performed osteotomy on the tibia only, and also deems it important to cut the bone right above the malleolus. But, to avoid opening of the tibio-tarsal joint, he incises the skin a little farther above than Trendelenburg. He had operated five times on three patients (up to April, 1889). One of the patients was cured, the second improved. In the third the operation rather aggravated the trouble. But this case was complicated, as the scaphoid bone formed a very marked prominence; the inner border of the foot was convex, the outer concave (pes reflexus). Hahn proposes to add Ogston's operation to osteotomy and reduction in such extreme cases.

The way I came to try supramalleolar osteotomy for flat-foot is somewhat similar to that of Trendelenburg, although the idea did not originate with me.

In April and May, 1889, two patients came under my care at the German Hospital who had been treated for Pott's fracture somewhere else. In both a very marked valgus position of the foot resulted, which entirely disabled the men. I performed supramalleolar osteotomy of tibia and fibula and succeeded in easily reducing the foot. The result in both cases was perfect. One of the patients, a young man twenty years of age, was presented to this society some fourteen weeks ago (he is also here to-night). Position and use of the foot are fully restored.

* Ctrlbl. f. Chir., 1889, Beilage, p. 108, and Verhandlungen d. deutsch. Gesellsch. f. Chir., Berlin, 1889, p. 81.

The man can walk many miles a day without the slightest discomfort. (Patient presented at the meeting.) I have been unsuccessful in finding the second patient. But I have learned that he resumed his former occupation—peddling; certainly sufficient proof for the good and permanent result of the operation performed on him.

After the experience of these two traumatic cases, I read in the report of the last Surgical Congress Trendelenburg's proposition to adopt supramalleolar osteotomy for the radical cure of flat-foot. This struck me as an eminently clever suggestion—so much the more as the success achieved with this method by Trendelenburg, even in far-advanced cases and older patients,* is rather remarkable.

In estimating the value of the operation it is interesting to notice that it removes the cause of the flat-foot according to either of the two main theories which have been given for its ætiology. The one, advanced in an excellent paper by Royal Whitman,† read before the last meeting of the American Orthopædic Association, and in a similar manner by A. Lorenz,‡ a few years ago, claims that in the normal foot the weight of the body falls upon the os calcis at a point internal to its base, and thus tends to roll it over toward the inside, presenting an inclined plane for the support of the leg. In consequence of this displacement the astragalus has a tendency to slip downward and inward on the articular facets of the os calcis. According to Lorenz, this only occurs under increased weight. Normal muscles and ligaments prevent any excessive displacement, and after each step restore the bones to their previous position; the displacement is only temporary. But if the strength of the

* Trendelenburg, *loc. cit.* Tafel xv, A. B.

† *Loc. cit.*

‡ Die Lehre vom erworbenen Plattfuss, Stuttgart, 1884. Ctrlbl. f. Chir., 1884, p. 315.

supporting muscles is overtaxed, they get tired (Henke). Then the ligaments alone must support the arch of the foot, and thus bear the entire strain, although they are really intended to act only as auxiliaries to the muscles.* It will not be long before the ligaments become stretched, especially the inferior calcaneo-scaphoid ligament, and hence the bones permanently displaced.

How far rickety softness of the bones comes into consideration in regard to the development of flat-foot (Koenig) can not be decided yet to-day.

The other theory is that of von Meyer.† It is founded on a number of careful post-mortem examinations. According to this theory, the inferior calcaneo-scaphoid ligament is not stretched, the arch of the foot not flattened, the line drawn from the middle of the os calcis to the head of the first metatarsal bone not materially lengthened. He attributes the deformity to an inward displacement of the arch, and with it of the whole foot, due to an exaggerated rotation of the astragalus. This latter is caused by an increase in the weight to be supported, faulty attitudes assumed in standing and walking, especially the latter, with turning out of the toes, wearing improper shoes, and so on.

Now, whether an abnormal persistence of the normal displacement of the astragalus on the os calcis is the original cause of flat-foot, or whether the entire foot is simply turned over in the sense of pronation, without being materially altered in its shape, supramalleolar osteotomy is indicated by both theories to be a rational operation. Without interfering with the bones or joints or soft tissues of the tarsus in any way, the result of the operation is, that the articular facets of the os calcis are placed in a plane ob-

* Koenig, Lehrbuch d. speciell. Chir., IV. Auflage, Bd. iii, p. 640.

† Ursache u. Mechanismus d. Entstehung des erworbenen Plattfusses, Jena, 1883; Ctrlbl. f. Chir., 1883, No. 18, p. 284.

lique externally. Then, when the weight is brought upon the foot in walking and the os calcis should still turn inward, these facets could only be brought to a horizontal plane, and so the astragalus can no longer slip downward and inward. Thus the good results of the operation would be perfectly in accord with the first-mentioned theory of flat-foot.

Again, the operation puts the entire foot into such a position that the patient must walk on its outer border, as is the case in the normally shaped foot. Thus the second theory, that of von Meyer, which explains the deformity by the total rotation inward of the foot, is also met by the operation.

My own two cases are the following:

Case I.—E. K., twenty-four years old, baker, entered my service at the German Hospital on November 23, 1889. Two years and a half ago he had noticed the first pain in his feet. During work he had always walked in slippers. The dorsum of the foot was usually swollen at night. Two months before the patient was admitted to the hospital the pain was so excruciating, even right after getting up, that he was obliged to quit work. He then applied for help at the German Dispensary, and was attended there as an out-patient for a short while. When the usual treatment was found not to give any material benefit, the patient was sent up to the hospital for operation through the courtesy of Dr. E. Bachmann, surgeon to the German Dispensary. On examination, the two feet presented the condition shown in the two casts which have been kindly taken by Dr. F. E. Sondern, of the house staff (Fig. 1). By a misunderstanding, the casts do not include the malleoli and lower third of the leg. But, nevertheless, it can be well observed that the arch of both feet has entirely collapsed, that the inner side of the foot runs in a line parallel to the ground, and is everywhere in contact with it. The sole of the foot left the imprint shown in Fig. 2, made from a photograph of the plaster of-Paris traces kindly taken by Dr. Henry Macdonald from the casts shown in

Fig. 1. The protuberance on the inner side of Chopart's joint is not very marked. There is also present the condition of a

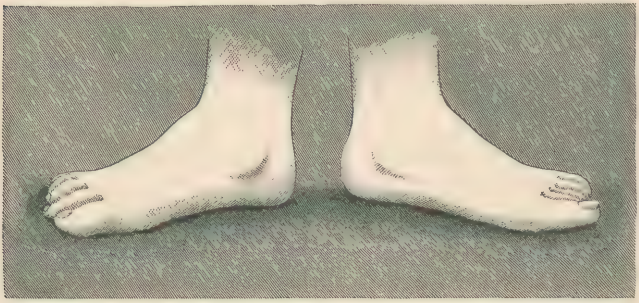

Fig. 1.

"stiff toe" to some extent. The case appearing a suitable one for radical treatment, I resolved to perform supramalleolar osteotomy.

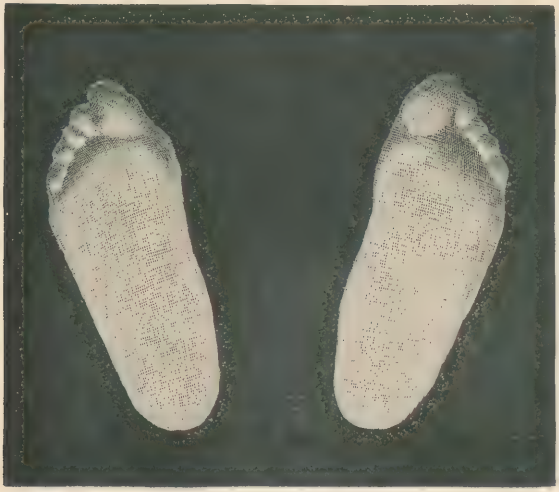

Fig. 2.

In doing this I followed the rules laid down by Trendelenburg. After careful carrying out of the usual preparations, an incision, half an inch long, was made down to the fibula, about two inches above the tip of the malleolus, the foot being turned inwardly by an assistant and resting on a sand-bag, which was covered by a moist antiseptic towel. Then the chisel was introduced into the wound, turned 90°, and the bone cut across. This wound being covered by an aseptic sponge, the leg was placed with its outer side on the operating-table, and the same operation performed on the tibia at about an equal distance from the tip of the internal malleolus as had been chosen on the fibula. By using a heavy, sharp, and broad steel chisel, as recommended by Macewen, this operation was done in a very few minutes. The rest of the tibia, which had not been divided, was then broken by forcibly pressing the foot into a pronounced valgus position. By these means the danger of wounding the

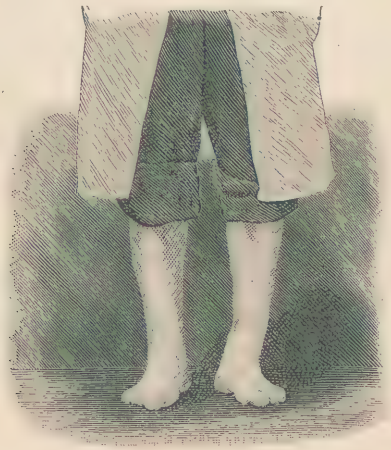

Fig. 3.

posterior tibial artery was avoided. Now the foot could be easily reduced. It was very interesting to observe how the restoration of the arch of the instep was at once absolutely

perfect. The same operation having been performed on the other leg, the wounds were dressed and both lower extremities put up in a plaster-of-Paris splint, which was strengthened by long interposed strips of thin wood, and ran up from the toes to the middle of the thigh. The knee joint was flexed to about 145° in order to relax the gastrocnemii, and special care taken to hold the foot in a somewhat overcorrected position, so that the line drawn alongside the spine of the tibia did not meet the *first* interosseous space as it does in the normal foot, the planta facing the ground, but the last one between the fourth and fifth

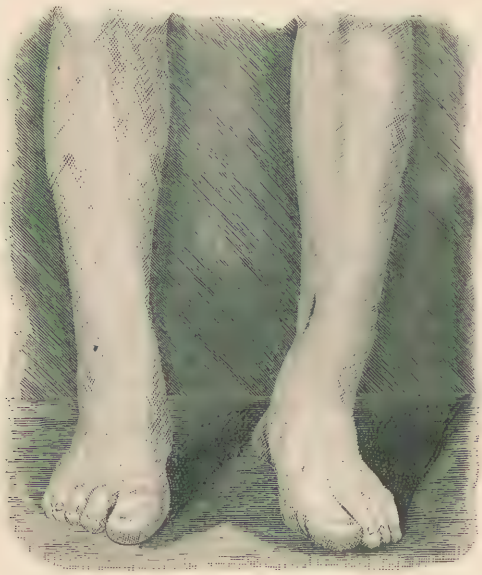

Fig. 4.

toe. There was no reaction after the operation. The temperature never rose above 100°. Some pain during the first twenty-four hours was easily controlled by a hypodermic of morphine. When the first dressing was changed on the thirty-fifth day, the wounds were found to be closed, except one, which was still

superficially granulating. It rapidly healed under an ointment dressing. At the end of the sixth week the patient got up on crutches. I kept him in the hospital until now to watch the result, the time since then being used by application of massage, foot baths, and exercises.

The result as it presents itself to-day—three months and a half after the operation—is best seen in these two casts, which have been taken ten days ago and include the lower half of the leg, and in the photographs kindly taken by Dr. F. H. Zitz, of the house staff, last week. We notice:

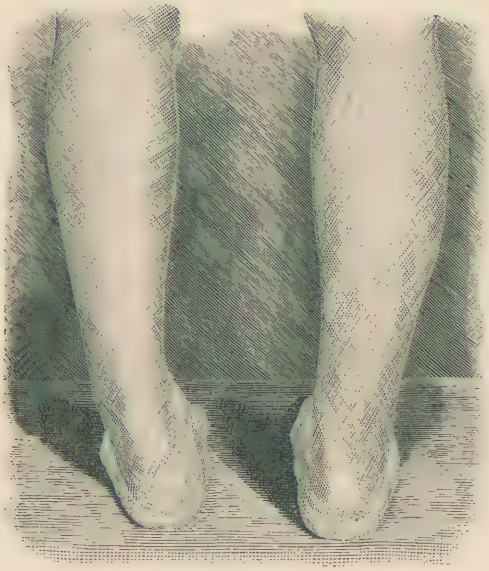

Fig. 5.

Left Side.—Perfect position of the foot; arch fully restored (Fig. 6, trace); standing and walking cause no pain. There is no stiffness in the tibio-tarsal joint; only the extreme plantar flexion is still somewhat impeded, but gradually improving. The patient says that he can walk and stand on that foot all

day long without the slightest inconvenience. The former excruciating pain, which rendered the patient a perfect invalid, has entirely disappeared.

Right Side.—Plantar arch restored to perfection (Fig. 6, trace). Slight inward rotation of the foot, evidently caused by improper fixation of the upper fragment by the nurse, who held it during hardening of the gypsum. [In applying the splint with the help of one assistant, I had the foot held in the reduced position by the second assistant—this being the principal part of the operation—and the leg by the hands of a nurse.] Standing and walking painless in the morning. After a few hours, exercise causes some pain and tires out. But the pain is different from that before the operation, undoubtedly due to the

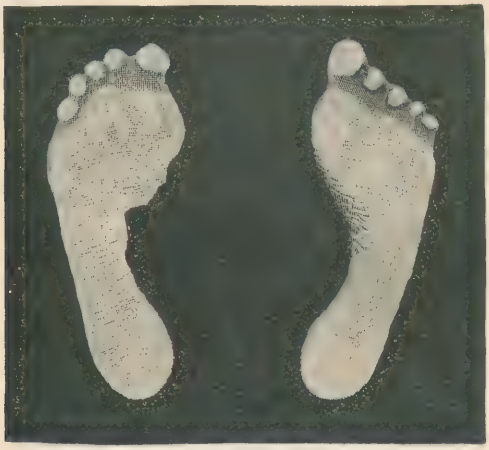

Fig. 6.

somewhat twisted course of the muscles. The constant improvement of the patient gives hope that the cure will, nevertheless, soon be complete.*

Case II.—P. B., butcher, twenty years old, was admitted to

* When the patient left the hospital, on March 21st, he stated that all his pain had ceased. He could walk for about an hour without trouble and was about to resume work.

the German Hospital on December 10, 1889. Two years ago he noticed the first pain in his right foot. He had to work very hard, carrying heavy weights and standing all day long. He got easily tired. The pain steadily increased, especially below the external malleolus, and also slightly attacked the other foot. Six weeks before entering the hospital he was obliged to give up his situation. As long as he can remember, the feet were peculiarly shaped. The casts, also taken by Dr. F. E. Sondern, demonstrate this nicely. There is an adduction and slight supination in Chopart's joint, as found in talipes varus, which nearly makes it seem as if there were no flat-foot at all. But examination of the right foot revealed the dislocation of the head of the astragalus, forming a marked prominence below the internal malleolus. In correcting the adduction of the forefoot the flattened arch becomes very evident. The diagnosis was rather difficult. The left foot is less affected, but also painful. Patient of slender build, size six feet, that of the feet eleven inches. As the patient suffered so much, I resolved to operate on him. Supramalleolar osteotomy was performed on December 13th in the same manner as above described. It was also followed by no reaction. First change of dressing on January 14th, five weeks and a half after the operation; wounds closed. On January 23d patient walked for the first time on crutches. He left the hospital February 23d. Although the peculiar combination of the original deformity with flat-foot did not make the case a very suitable one for operation, the result as it presents itself to-day, exactly three months after the operation, is very satisfactory. The arch of the foot, though not really flattened before the operation on account of the adduction and supination of the anterior portion of the foot, is very marked. Patient walks several hours in laced shoes with the support of a cane. The pain below the outer ankle has left him. Only now and then a slight drawing sensation is noticed. The walk improves rapidly. It is not yet steady when the patient is barefooted. Patient will soon be able to resume his former occupation. (The two patients were presented at the meeting.*)

* At the time of correcting the proof the patient walked easily without any support.

In criticising the result of supramalleolar osteotomy in the operative treatment of flat-foot, as demonstrated in my two patients, it does not need a trained eye, Mr. President, to see, as far as the position of the feet is concerned, that it could be improved in two of the four feet operated upon. It certainly would be still more perfect in these two cases also if I had changed the splint between the tenth and twelfth day after the operation and corrected the position, as Trendelenburg recommends to do. This is no doubt an essential feature in the after-treatment. As my experience in the two cases of traumatic flat-foot had told me that the position maintained by the first splint was such as to need very little or no correction at all, I tried to simplify the after-treatment and effect the cure under the first dressing. But I think this was wrong. Slight mistakes may occur during the application of the first splint, and may be easily corrected if the splint is changed and the position revised.

In my two cases the position of the feet is *over*corrected. I did that purposely. I intended to find out whether the application of a brace, to be worn later for a short while, in order to maintain the new position, as Trendelenburg has done, could thus be avoided. As it seems to me, after this rather small and short and insufficient experience, slight overcorrection and wearing a tight-laced shoe may make the application of a brace unnecessary and the after-treatment therewith more simple. If correction is overdone, there may result such an angular displacement of the fragments at the point of osteotomy as to nearly produce a traumatic talipes varus.

The result, as shown in my two cases until date, certainly tends to sustain Trendelenburg's hope that supramalleolar osteotomy can cure flat-foot in a comparatively short time. The restoration of the arch, which is so perfect and surprisingly easy after the operation, seems to be permanent.

Whether it will prove to be so eventually, after heavy work has been performed, is a question that the future must decide. But I think there is no reason to fear a relapse. Whether, further, it will always be necessary to operate on both bones or to perform osteotomy of the tibia only, as Hahn has done, still remains to be decided. How far the results of this treatment will reflect upon the theory of flat-foot is not easy to determine. It certainly shows, as I believe, that the change in transmitting the weight through the tarsus is the principal cause of all the trouble and pain the patient complains of. That the patients are entirely relieved of their previous constant pain by this operation is beyond doubt.

Whether Ogston's operation must be added now and then, as Hahn proposed, will depend upon each case. Perhaps it may be necessary or advisable in the extreme cases of talipes valgus.

My own impression is that supramalleolar osteotomy, as proposed by Trendelenburg, is a valuable and important contribution to the many ways of curing flat-foot by operation —one which in course of time may perhaps prove to be the best of all. It seems to be worthy to be thoroughly tested by those who have a large material at their command.

The following brief conclusions may with propriety be drawn:

1. Supramalleolar osteotomy seems to be the most rational operation for the radical cure of flat-foot, as its object is to correct the deformity without interfering with any of the tissues of the foot proper. It therefore deserves trial.

2. In far-advanced cases (talipes valgus) it will most probably give a good result too, and may advantageously be combined with Ogston's operation (Hahn).

3. If osteotomy has been performed, the position of the foot can be easily corrected or overcorrected.

4. The tibia and fibula should be cut close to the tibio-tarsal joint and the latter not injured.

5. As soon as the foot is pressed into a normal position it will be seen that the arch is completely restored.

6. Between the tenth and twelfth days the splint should be renewed and the position of the foot re-examined, and, if necessary, definitely corrected.

7. The patient may get up in about five to six weeks after the operation.

8. A slight overcorrection may be advisable to guard against recurrence and the necessity of temporarily wearing a supporting brace.

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